

## AUSTRALIAN TABANIDÆ [DIPTERA]. No. iv.\*

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(Plates i.-ii.)

The Tabanidæ comprising most of the subject-matter of this paper have been received from Mr. Longman, Director of the Queensland Museum, and Messrs. W. W. Froggatt, R. J. Tillyard, and G. F. Hill. I wish to tender my best thanks to these gentlemen for affording me the opportunity of studying these forms.

Mr. Hill's collection contained by far the greater number of novelties, but the most distinctive and beautiful *Tabanus* yet described, *T. walteri*, was contained in Mr. Froggatt's collection, the type of which he has generously presented to the Institute. The Institute is also indebted to Mr. Hill's generosity in giving the types of his new species.

One new genus has been proposed for a striking species of the subfamily Tabaninæ, and descriptions of twenty-six new species and one variety are given, which are distributed in the following genera—*Silvius* (three, and one variety), *Cydistomyia* (g. et sp.n.), and *Tabanus* (twenty-two).

## Subfamily PANGONINÆ.

## PELECORHYNCHUS FULVUS Ricardo.

Ann. Mag. Nat. Hist., (8), v., p.406 (1910).

*Hab*—N.S.W.: Mount Bindo, 4,100 feet, near Hampton (R. J. Tillyard).

## PELECORHYNCHUS NIGRIPENNIS Ricardo.

Ann. Mag. Nat. Hist., (8), v., p.405 (1910).

\* Continued from Vol. xlii., 1917, p.528.

My reference to *P. maculipennis* Macq., (Proc. Linn. Soc. N. S. Wales, 1917, xlii., pp.513 and 515), should refer to *P. nigripennis* Ricardo.

EREPHOPSIS LASIOPHTHALMA Boisd.

Voy. "Astrolabe," Zool., ii., p.666 (1832); Ricardo, Ann. Mag. Nat. Hist., (8), xix., p.210 (1917); Taylor, Records Aust. Mus., xii., No.5, p.56 (1918).

A specimen in Mr. Froggatt's collection agrees with Miss Ricardo's description in all details except the antennæ, which are black, and the palpi black, with the apical third of the second joint dark red, pubescence mainly black.

*Hab.*—W.A.: Darlington (J. Clarke; Coll. W. W. Froggatt, No.83F).

EREPHOPSIS SUBMACULA Walker.

List. Dipt., i., p.142 (1848); *id.*, Dipt. Saund., i., p.13 (1850); Ricardo, Ann. Mag. Nat. Hist., (7), v, p.115 (1900).

A specimen under review agrees with Miss Ricardo's description. The third joint of the antennæ is broken. The wings are yellowish along the costa, and at the base, and have the first and fourth posterior cells closed for a short distance from the border.

Miss Ricardo remarks that this species should belong to *Scione* Walker, (*Diclisia* Schiner), but that it is too nearly allied to *E. guttata* Don., and *E. media* Walker, to make it advisable to remove it from *Erephopsis* at present.

*Hab.*—W. Australia (C. French, 1909; Coll. W. W. Froggatt, No.84F).

DIATOMINEURA BREVIROSTRIS Macquart.

Dipt. Exot., Suppl., iv., p.326 (1842); Ricardo, Ann. Mag. Nat. Hist., (8), xix., p.208 (1917).

*Hab.*—Q.: Mt. Tambourine (W. H. Davidson, *per* R. J. Tillyard).

DIATOMINEURA AURIFLUA Donovan.

Gen. Illustr. Ent. Hym. et Dipt. (1805) [*Tabanus*]; Ricardo, Ann. Mag. Nat. Hist., (8), xix., p.208 (1917).

*Hab.*—Tasmania: Launceston (F. M. Littler). N.S.W.: Hampton (R. J. Tillyard).

## DIATOMINEURA IANTHINA White.

Pap. and Proc. Roy. Soc. Tasmania, 1915, p 19.

*Hab.*—Tasmania (F. M. Littler).—N.S.W.: Hampton (R. J. Tillyard).

## SILVIUS NOTATUS Ricardo.

Ann. Mag. Nat. Hist., (8), xvi., p.264 (1915).

A specimen sent by Mr. Froggatt agrees with this species in all details except as regards the clothing of the front, which is a dark brown colour, yellowish between the sub- and frontal calli, frontal callus shining black, about two-thirds the width of the front, upper edge oval, no lineal extension, its base a short distance from the subcallus, the latter with a shallow median groove; ocelli prominent, with grey tomentum round them as in the type.

The third joint of the antennæ and the palpi are broken off.

A second specimen also appears to represent this species, but both the thorax and the abdomen are somewhat denuded; there is scarcely any trace of spots on the abdomen, and the stripes on the thorax are indistinct, otherwise it is typical

*Hab.*—N.S.W.: Hay, Moree (W. W. Froggatt, Nos.72, 74F).

The specimen from Hay was taken on the trunks of red-gums (*Eucalyptus* sp.) on the banks of the Murrumbidgee River; the one from Moree was taken by sweeping grass on marsh-land.

## SILVIUS ELONGATULUS Taylor.

Proc. Linn. Soc. N. S. Wales, 1915, xl., p.812 (1916).

## S. ELONGATULUS, var. PERSIMILIS, var. nov.

♀. Similar in all details to the typical form, except the legs and abdomen.

*Legs* black; basal third of fore-tibiæ yellowish-brown, tibiæ and tarsi of midlegs yellowish-brown, tibiæ and tarsi of hindlegs dusky brown, first tarsals paler.

*Abdomen*: first three segments honey-yellow (one specimen has the first four segments honey-yellow), fourth brownish, the remainder grey-black, pubescence pale, segmentations pale.

*Hab.*—N. Territory: Brock's Creek, Batchelor, and Darwin (G. F. Hill).

There is a striking similarity between *S. elongatulus* and the specimens described as var. *persimilis*, so much so that the above distinctions do not appear to warrant their separation as distinct species. I omitted to state, in describing *S. elongatulus*, that the front is nearly twice the width anteriorly than posteriorly.

SILVIUS ANGUSTICALLOSUS, sp.n.

♀. Length, 9·5; width of head, 3; length of wing, 10 mm.

A small, slender, black and yellowish species. Frontal callus a narrow line reaching the ocelli; legs black, tibiæ yellowish; wings yellowish-brown, basal cells clear. Abdomen with first three segments yellowish-brown, darker in the middle. Eyes pubescent.

*Head*: face and cheeks with blackish tomentum, grey toward sides of cheeks; pubescence black, interfacial cheek-grooves deep; beard black and grey, scanty; eyes with scanty pubescence; front narrow, slightly narrower at the vertex; tomentum grey, yellowish-brown in the centre; pubescence dark; frontal callus black, consisting of a narrow line from the subcallus to the ocelli; subcallus black, tomentum grey; palpi as long as proboscis, reddish, tomentum grey, pubescence black, pale at base; first two joints of antennæ yellowish, pubescence pale, third joint reddish-yellow, the three apical annuli blackish.

*Thorax* chocolate-brown with grey tomentum [somewhat denuded], pubescence pale; scutellum similar; pleuræ black, tomentum and pubescence grey.

*Abdomen*: first three segments pale yellowish-brown on the sides, less so on first segment, blackish-brown elsewhere, the remaining segments black, segmentations pale on all segments, with pale pubescence, black elsewhere; venter pale, blackish towards apex, pubescence pale.

*Legs* black, basal half of fore- and midtibiæ yellowish-brown, hind darker, coxal pubescence pale, black elsewhere.

*Wings* yellowish-brown, darker on fore-border; except the discal, inferior basal, anal, axillary, and bases of the fourth and fifth posterior cells, which are clear, the veins of these cells are faintly clouded, the veins blackish-brown; stigma blackish-brown; no appendix.



*Hab.* — Q.: Stradbroke Island (H. Hacker).

A very distinct species on account of the frontal callus alone. It is most nearly related to *S. niger* Ricardo, but is markedly distinct.

Type in the Queensland Museum.

*SILVIUS HACKERI*, sp.n.

♀. Length, 15·5; width of head, 5·5; length of wing, 13; proboscis, 4 mm.

A large, blackish-brown species; antennæ and palpi brownish; legs reddish brown; abdomen with median grey, apical flecks, segmentations grey.

*Head*: face and cheeks black, tomentum grey, pubescence mainly black; grooves between face and cheeks deep; subcallus shining chestnut-brown; front broad, parallel, tomentum dull golden, tinged with brown, brighter anteriorly, pubescence black; frontal callus kite-shaped, constricted near the base of middle third, dull reddish-brown, about half the width of front at widest part; first two joints of antennæ dark reddish-brown, third black, base broad, concave laterally, pubescence black, scanty; palpi conspicuously long, second joint greyish-black, apex black, truncate, base concave laterally; proboscis long, black; beard grey; eyes bare.

*Thorax* chocolate-brown, with three brownish stripes, the median one broad and half the length of thorax; tomentum grey; shoulders pale reddish, pubescence black, long laterally, with grey hairs beneath; scutellum dark reddish-brown, posterior pubescence grey; pleuræ pale reddish-brown, tomentum and pubescence grey.

*Abdomen* blackish-brown; second segment reddish-brown, grey in profile, segmentations grey, median grey-haired, apical, triangular flecks on the first six segments, lateral borders of segments pale with pale hairs, more pronounced posteriorly; venter pale on the sides, black in the middle, tomentum grey, pubescence grey and black.

*Legs* reddish-brown, tarsi darker, pubescence black, grey on coxæ.

*Wings* clear; veins dark brown; stigma brown; no appendix.

*Hab.*—Q.: Brisbane (H. Hacker).

Allied to *S. grandis* Ricardo, from N.W. Australia, but distinguished from it by the frontal callus, thorax, abdomen, legs, and wings.

Type in the Queensland Museum.

SILVIUS VICINUS, sp.n.

♀. Length, 11; width of head, 4; length of wing, 10 mm.

A small species with yellowish thorax and brown abdomen, with traces of median spots. Femora reddish-yellow, tibiæ and tarsi black. Wings clear, appendix rudimentary.

*Head*: face and cheeks covered with grey tomentum and scanty grey pubescence; beard grey, scanty; first two joints of antennæ reddish-yellow, pubescence black; third joint darker; apex dark brown, base broad; palpi pale yellowish-red, tapering to a blunt point, pubescence pale at base, scanty; front about twice as wide at vertex, tomentum golden, pubescence black, frontal callus wedge-shaped, brownish-yellow, about one-third the width of the front, lineal extension reaching the ocellar triangle; ocelli prominent; subcallus paler than front; eyes bare.

*Thorax* with dense golden-yellow tomentum, pubescence pale yellow and black, the latter very scattered, grey on the sides; scutellum similar to thorax; pleuræ slate-coloured, pubescence grey, dense at the wing-roots.

*Abdomen*: first two segments yellowish-brown, the rest blackish-brown, segmentations pale, pubescence black, pale on segmentations; there are indefinite, yellow-haired, median, apical, triangular spots on the segments.

*Legs*: coxæ and femora reddish-yellow, with pale pubescence; tibiæ and tarsi black, the former pale at the base, pubescence black.

*Wings* clear; veins dark brown; stigma yellowish-brown; appendix rudimentary on one wing, absent on the other.

*Hab.*—Q: Stradbroke Island (H. Hacker).

Related to *S. fulvohirtus* Taylor, but separated from it, *inter alia*, by its abdomen and legs.

Type in the Queensland Museum.

## Subfamily TABANINÆ.

## CYDISTOMYIA, gen. nov.

Face protuberant, with sublateral grooves; antennæ rising from well-defined cavities, third joint with six divisions, last division very obscure; first segment fairly long, cylindrical, second about one-third the length of the first, base of third as in *Tabanus*, long. Palpi about two-thirds the length of the proboscis, with first joint short and swollen, second as in *Tabanus*; eyes nude; wings about twice the length of abdomen, radial vein slightly curved, all cells widely open except the anal, which is closed near the border. Abdomen short and comparatively broad, as long as the thorax.

Genotype, *C. doddi* Taylor; ♂ unknown.

This genus is proposed for a species having a general resemblance to a Pangonid. It is abundantly distinct from all species described from Australia known to me.

## CYDISTOMYIA DODDI, sp.n.

♀. Length, 12; length of wings, 11; width of head, 5 mm.

*Head*: face and cheeks grey, faintly tinged with cream, lower half of face between the grooves brown; pubescence pale, face slightly protuberant; grooves between face and cheeks not continuous, terminating about one-third the depth of the face from the bottom; beard scanty\*, pale cream-coloured; first and second joints of antennæ black, pubescence black, long on the ventral surface, base of third blackish-brown, with dense, short, black and grey pubescence, annuli black, base with a small tooth; palpi black, pubescence black, second joint tapering to a fine point; front narrow, sides parallel, covered with yellowish-brown tomentum, with a narrow border of pale pubescence from the base to the apex of the extension of the frontal callus, the latter spear-shaped, shining brown, about two-thirds the width of the front at the base, not quite resting on the subcallus, the lineal extension reaching the middle of the front; subcallus grey, very slightly tinged with cream.

*Thorax*: anterior half olive-brown, with two sublateral olive stripes reaching the posterior third, posterior half deep olive-

brown, sides and posterior border broadly golden, also a short, pale band from the sides joining the olive stripes at the apex of the anterior third, pubescence golden on the golden areas, elsewhere black; pleuræ covered with grey tomentum and pubescence, the latter golden beneath the shoulders.

*Abdomen* deep olive-brown; all the segments with creamy-white, apical, triangular flecks, segmentations narrowly pale, sides of segments with apical, more or less triangular flecks diminishing in size towards the apex of the abdomen; pubescence pale on the creamy areas, black elsewhere; venter entirely greyish with pale pubescence.

*Legs* blackish-brown, pubescence black.

*Wings* very faintly tinged brown; veins black, the radial vein slightly curved; stigma yellowish; no appendix.

*Hab.*—Q.: Kuranda (F. P. Dodd).

Described from a single specimen. It is a very distinct and beautiful insect, and is named in honour of its discoverer.

Group iv. Forehead with no callus.

TABANUS ANGUSTICALLUS Ricardo.

Ann. Mag. Nat. Hist., (8), xix., p.218 (1917).

A single specimen before me shows that the thorax has numerous pale hairs in addition to the black pubescence. The annuli of the third joint of the antennæ are brownish when viewed from above.

*Hab.*—N. Territory: Howard Creek (G. F. Hill).

Group vii. Abdomen with one or more stripes, usually continuous.

TABANUS WALTERI, sp.n.

(Plate i., fig.1).

♀. Length, 15.5; length of wing, 14; width of head, 5.5 mm.

*Head*: face with grey tomentum and pubescence, darker on the cheeks; subcallus with brown tomentum; front grey, with grey pubescence, somewhat darker in the centre, very slightly narrower at the base, frontal callus almost square with a lineal extension reaching the centre, upper portion and extension

reddish-brown, the rest reddish-yellow; beard grey, scanty; palpi pale reddish-yellow tapering to a fine point, pubescence black; first and second joints of antennæ dark red, apex of first black, pubescence black, with scattered pale hairs, third joint black, with a small tooth on the expanded basal portion.

*Thorax* grey, with a narrow, whitish, median line reaching the scutellum; a dark brown, fairly broad stripe on the sides, in which is a narrow, grey stripe from the suture to near the posterior extremity of the brown stripe, a narrow, grey stripe from the wing-roots to the scutellum, shoulders, and sides to the wing-roots reddish; scutellum red, with a dark blotch anteriorly, tomentum grey, pubescence of thorax and scutellum dark; pleuræ with grey tomentum and pubescence.

*Abdomen* reddish-brown, becoming almost black on the last two segments, segmentations and sides of all segments grey; all the segments with median, trapezium-shaped, grey patches, which are wider at the apex than at the base, pubescence grey on the stripe, segmentations, and sides, dark elsewhere; venter grey, with a broad, median, dark stripe.

*Legs*: coxæ and femora slate-grey, with grey pubescence, basal half of the fore- and mid-tibæ and knees yellowish-brown, hind-tibæ yellowish, apex of mid-tibæ blackish, pubescence grey, tarsi blackish, pubescence black.

*Wings* with prominent, grey patches in all cells; veins black, stigma yellowish-brown; appendix on right wing very short, rudimentary on the left.

*Hab.*—N.S.W.: Hay (W. W. Froggatt, No 711F.; 20-12-17).

This is one of the most distinct and handsome Australian species of *Tabanus*. The thoracic ornamentation, and the shape of the abdominal spots are very marked.

It affords me very great pleasure to dedicate this species to its discoverer.

TABANUS EIDSVOLDENSIS, sp.n.

(Plate ii., fig.2)

♀. Length, 10.5-14; width of head, 4.5; length of wing, 9.5-11 mm.

*Head*: face and cheeks black, with grey tomentum and pubescence; subcallus reddish-brown, tomentum grey; front parallel,

omentum grey, brownish round the apical extremity of the frontal callus, pubescence black, fairly long on vertex, frontal callus dark reddish-brown, resting on subcallus, as wide as front, almost square with a stout lineal extension reaching beyond the centre of front; palpi pale reddish-yellow, ending in a blunt point, pubescence black, with numerous, fairly long, pale hairs on basal portion: antennæ reddish-yellow, darker than palpi, annuli appearing dusky, pubescence on first two joints black, with a few pale hairs beneath, base of third broad, no angle or tooth; beard grey.

*Thorax* black, sides reddish, tomentum grey, with three chocolate-brown stripes, pubescence black, with intermixed grey hairs especially noticeable on the posterior half, mainly black laterally and fairly long; scutellum black, with mixed black and pale pubescence; pleuræ black, reddish beneath wing-roots, tomentum and pubescence grey.

*Abdomen*: first segment dusky, next three reddish-brown, remainder darker, segmentations grey, fairly broad on first four segments, with median, grey, triangular spots forming a continuous stripe on segments two to six, pubescence black, pale on posterior borders; venter reddish-yellow, apex darker, pubescence pale.

*Legs*: coxæ and forelegs black, coxæ and femora with grey tomentum and long grey pubescence, black elsewhere, very dense on tarsi, basal two-thirds of fore-tibiæ dark yellowish-brown, with a few pale hairs; mid- and hindlegs yellowish-brown, femora dusky, tomentum grey.

*Wings* clear; veins brown; stigma yellow; a short appendix present.

*Hab.*—Q.: Eidsvold (Dr. T. L. Bancroft).

This species appears to be most nearly related to *T. laticallosus* Ricardo, but is readily differentiated from it. It bears a superficial resemblance to *T. circumdatus* Walker, of Group xi.

TABANUS OBSCURILINEATUS, sp.n.

(Plate i., fig.3).

♀. Length, 11·5; width of head, 4·5; length of wing, 10 mm.

*Head*: face and cheeks with grey tomentum and white pubes-

cence; subcallus pale chamois, with a median furrow; front about one-third narrower anteriorly, darker than subcallus, pubescence pale, frontal callus brown, small, oblong, no lineal extension, about one-third of the width of front, and not quite resting on subcallus; palpi creamy, first joint with long, grey pubescence, second swollen, ending in a blunt point, pubescence black and pale, mainly the former; first two joints of antennæ and base of third reddish-yellow, annuli darker, tooth represented by a large, shallow angle, pubescence black on first two joints; eyes black.

*Thorax* covered with brown tomentum, and black and coppery pubescence, shoulders pale reddish, with long, dark pubescence, scutellum similar; pleuræ grey, with grey pubescence.

*Abdomen* honey-yellow, the first four segments with black, triangular, median patches, their bases resting on the posterior margin of segments, except in the first segment, stripe covered with brown tomentum, in the remaining segments the median patches do not reach the posterior margin, pubescence black; venter reddish-yellow changing to black posteriorly, with brown tomentum, pubescence pale.

*Legs* black, basal half of fore-tibiæ yellowish, with pale pubescence, mid- and hind-tibiæ and apex of femora yellowish, coxæ and femora with grey tomentum and pubescence, hind-tibiæ with black and pale pubescence, black elsewhere.

*Wings* clear; veins yellowish-brown; stigma yellow; no appendix present.

*Hab.*—N. Territory: Darwin (G. F. Hill).

Described from two specimens, which bear a certain relationship to *T. reduens* Walker, from Macassar and Celebes, and to *T. queenslandii* Ricardo, but are abundantly distinct from them. The specimens bear the following note—"In house, daytime. Eyes green."

Paratype in Coll. Hill.

TABANUS OBSCURIMACULATUS, sp.n.

(Plate ii., fig.4).

♀. Length, 13-17; width of head, 4.5-5; length of wings, 11-14.5 mm.

*Head*: face, cheeks, subcallus, and front chamois-coloured, pubescence on face and cheeks white, scanty; beard grey; front slightly narrower anteriorly, pubescence black, with a tuft of pale and black hairs on the vertex, frontal callus reddish-brown, pear-shaped, with a long, linear extension, about two-thirds the length of the front; palpi pale creamy, second joint swollen, tapering to a fine point, pubescence pale, with a few, short, scattered, black hairs; first two joints of antennæ pale reddish-yellow, with greyish tomentum and black pubescence, third joint darker, annuli dusky, expanded portion with a very small tooth.

*Thorax* black, shoulders yellowish-red, tomentum grey, pubescence black and pale, fairly long on the sides, scutellum similar to thorax; pleuræ with grey tomentum and pubescence.

*Abdomen*: first three segments honey-yellow, the remainder black, second and third with an obscure black spot, somewhat variable in size, tomentum grey, pubescence black and pale; venter pale reddish-yellow, darker towards apex, with dense grey pubescence, lateral margins with pale pubescence except at the apex.

*Legs* reddish yellow, tarsi darker, pubescence pale on coxæ and femora, black and pale on tibiæ, and black on tarsi.

*Wings* clear; veins yellowish-brown; stigma yellow; no appendix present.

*Hab.*—N. Territory: Darwin (G. F. Hill, No. 105).

A medium-sized species, more or less closely related to *T. obscurilineatus* mihi, and *T. queenslandii* Ricardo.

Paratype in Coll. Hill.

#### TABANUS QUADRATUS, sp.n.

♀. Length, 9.10.5; width of head, 3.3.5; length of wing, 8.9 mm.

*Head*: face with yellowish tomentum, slightly protuberant, grooves well developed; cheeks grey, tomentum and pubescence grey; beard grey, scanty; subcallus yellowish, with dull golden tomentum; front black, broad, with dark pubescence, giving it a dusky appearance, and a few pale hairs on the sides, parallel, about twice as long as broad, frontal callus dark red-brown, square, about half as wide as the front, and resting on the sub-



callus; first two joints of antennæ yellowish, with scanty black pubescence, base of third reddish-yellow, annuli darker, tooth represented by a shallow angle; palpi yellow, tomentum and pubescence grey, the latter mainly black on second joint.

*Thorax* black, with grey tomentum, pubescence black and pale, shoulders reddish, with fairly long, dark pubescence, scutellum similar to thorax: pleuræ black, with grey tomentum and pubescence.

*Abdomen*: first three segments tawny, the remainder dark brown, fourth segment paler, segments two and three with obscure, median, black spots, all the segments with indications of a continuous pale stripe, pubescence black, with scattered pale hairs, posterior and lateral borders with pale pubescence, sides of last three segments yellowish; venter pale reddish-yellow, the three apical segments dusky, pubescence mostly pale.

*Legs* yellowish, apex of fore-tibiæ and all the tarsi darker, pubescence pale on coxæ, and mid- and hind-femora black elsewhere.

*Wings* grey; veins brown, paler basally; stigma yellow; an appendix present.

*Hab.*—N. Territory: Darwin (G. F. Hill; Nov. 1913).

Described from two specimens, one of which is slightly damaged, and with a dirty wing. Close to *T. similis* Macq., from Tasmania, but distinguished by the abdomen in the latter species being warm buff, and having a broad, median, mummy-brown stripe, with a narrow, grey, tomentose stripe on it. Mr. Hill notes that the eyes are bright green in life.

#### TABANUS AUSTRALICUS, sp.n.

♀. Length, 13; width of head, 4·5; length of wing, 10·75 mm.

A blackish-brown species. Thorax slate-coloured. Abdomen blackish-brown, first two segments yellowish. Legs black, tibiae yellowish. Wings grey.

*Head*: face and cheeks with grey tomentum and pubescence; beard grey, scanty; first joint of antennæ reddish-yellow, apex black above, second segment black, very short, almost obscured by the first when viewed from above, pubescence black on both

segments, third joint black, base with an obtuse angle, no tooth present; palpi pale reddish-yellow, very stout, ending in a blunt point, pubescence grey and black, mainly the former; front parallel, tomentum grey, brownish in the centre, pubescence black and creamy; frontal callus reddish-brown, almost circular, about one-third of the width of front, and not quite resting on the subcallus, which is creamy; lineal extension black, long.

*Thorax* slate-coloured, pubescence golden, shoulders pale reddish; scutellum similar to thorax, pubescence pale, long on posterior border; pleuræ black, tomentum and pubescence grey.

*Abdomen*: first two segments and basal half of third brownish, first segment darker; the remainder blackish-brown, segmentations pale, a continuous, grey tomentose-stripe on segments one to six, pubescence black, grey on the stripe, sides of segments, and bands; venter slate-coloured, segmentations and pubescence pale.

*Legs* black, coxæ and femora with grey tomentum and pubescence, basal half of fore-, basal two-thirds of mid-, and the whole of hind-tibiæ reddish-yellow, the rest of legs black, pubescence pale on tibiæ, black on tarsi.

*Wings* grey; veins blackish-brown; stigma yellowish; no appendix.

*Hab.*—Q.: Brisbane (H. Hacker).

A species most nearly related to *T. queenslandii* Ricardo, but differing chiefly in the thorax, abdomen, and legs.

Type in Queensland Museum.

#### TABANUS DAPHNENUS, sp.n.

♀. Length, 10-11.5; width of head, 3.5-4.5; length of wing, 8-9.5 mm.

*Head*: face and cheeks with grey tomentum and pubescence; subcallus darker, yellowish at base of antennæ; front parallel, narrow, tomentum dull golden, grey on vertex, pubescence black, densest on vertex, frontal callus about half the width of front, lenticular, brownish-yellow, with a median groove, lineal extension black, reaching middle of front; first two joints of antennæ golden, second joint obscured by first from above, pubescence

black, base of third dull reddish-yellow, with a blunt tooth, annuli dusky; palpi creamy-yellow, second joint stout at base, pubescence black and pale; beard grey.

*Thorax* black, shoulders reddish, tomentum slate-grey, pubescence black and pale, fairly long on the sides, scutellum similar; pleuræ with grey tomentum and pubescence.

*Abdomen*: first three segments reddish, the remaining segments darker, pubescence mixed pale and black; all the segments show an indistinct, pale median stripe when viewed from behind forwards; one specimen has the first two reddish, and the remaining segments dusky; venter reddish, darker towards apex.

*Legs*: forelegs black, except basal half of tibiæ reddish-yellow, with pale pubescence; mid- and hind-femora with the basal half faintly dusky, and with grey tomentum, the rest of femora and the tibia reddish-yellow, with pale pubescence, tarsi dusky, with black pubescence.

*Wings* clear, subcostal, first long vein, and veins on basal half yellowish, the rest brown; stigma yellowish; no appendix.

*Hab.*—N. Territory: Darwin, and thirty miles east of Darwin (G. F. Hill, Nos. 111, 113).

A well defined species, and, apparently, not closely related to other members of Group vii. Mr. Hill notes that the eyes are greenish-bronze, and that it is a persistent biter of horses.

*Paratype* in Coll. Hill.

Group viii. Species with median or lateral spots, or both, on abdomen, not usually forming a continuous stripe.

#### TABANUS GRISEUS, n.sp.

♀ Length, 11.5; length of wing, 10; width of head, 4 mm.

*Head*: face and cheeks with grey tomentum and pubescence, face slightly convex in the middle, with a shallow groove on either side, pubescence and tomentum grey, yellowish beneath subcallus, with black pubescence, subcallus with pale golden-yellow tomentum; front converging slightly towards vertex, tomentum golden, pubescence black, frontal callus shining black, bottle-shaped, with a short, thick extension; beard grey, scanty: first two joints of antennæ golden, with short, black pubescence,

third joint pale reddish-yellow, annuli darker, basal portion with an inconspicuous angle; palpi yellow, ending in a blunt point, pubescence short, mixed pale and black.

*Thorax*: deep greyish-olive, pubescence dark, scanty, scutellum similar; pleuræ with grey pubescence and tomentum.

*Abdomen*: deep greyish-olive, pubescence black, short, segmentations with scanty pale pubescence: segments three to five with pale, median, apical, triangular spots when viewed from the head toward the abdomen; sides of segments yellowish: venter black, with grey tomentum and pubescence.

*Legs*: black, apices of femora yellowish-brown, apical third of fore-tibiæ blackish, the remainder with mid- and hind-tibiæ yellowish-brown, tarsi black; pubescence on femora and tibiæ mainly pale, black on tarsi; coxæ grey, with grey pubescence.

*Wings*: upper half lightly shaded with pale brown, veins black, faintly clouded with brown, except the anal vein and those forming the posterior cells; stigma dark yellowish-brown; appendix present.

*Hab.*—Q.: Brisbane (H. Hacker; 20.12.17).

Type in the Queensland Museum.

This species does not seem to be closely related to any other member of Group viii. It appears to be a very distinct species.

#### TABANUS APREPES, sp.n.

♀. Length, 13.5; width of head, 5; length of wing, 11.5 mm.

*Head*: face, cheeks, and subcallus grey, pubescence on face and cheeks grey; front parallel, with grey tomentum, creamy on the sides, pubescence black, with scattered yellow hairs, chiefly on the sides, frontal callus black, pear-shaped, half the width of front and resting on subcallus, with a long extension reaching the middle of the front; palpi white, with black and white pubescence, stout, ending in a blunt joint; first two joints of antennæ yellowish, pubescence black above, grey laterally, third black, tooth represented by a broad angle; beard grey, scanty.

*Thorax*: slate-grey, pubescence golden, sides reddish, pubescence

black, scutellum similar to thorax; pleuræ with grey tomentum and pubescence.

*Abdomen* pale yellowish-red, pubescence black, all segments with a small, median, apical, triangular, pale fleck; pubescence pale laterally; venter yellowish-red, pubescence pale.

*Legs*: forelegs and basal two-thirds of mid- and hind-femora black, basal two-thirds of tibiæ and knees yellowish-brown, with pale pubescence, apical third of mid- and hind-femora, and the tibiæ and tarsi paler than fore-tibiæ, coxæ and femora with grey tomentum and pubescence, the latter mixed pale and black on femora, very dense on tarsi.

*Wings* clear, grey; veins dark brown; stigma yellow; no appendix present.

*Hab.*—Q.: Kuranda (F. P. Dodd).

Described from a single specimen, and apparently closer to *T. innotabilis* Walker, than to other members of Group viii.

Group ix. Species with paler bands, and sometimes spots on the abdomen.

#### TABANUS BREVIOR Walker.

List. Dipt., i., p.188 (1848); Ricardo, Ann. Mag. Nat. Hist., (8), xv., p.279 (1915).

*Hab.*—N. Territory: Darwin, Howard Creek (G. F. Hill, No.110).

The specimens before me do not agree well with Miss Ricardo's description of this species; but, until a specimen has been compared with the type, it is deemed advisable to leave them under the above name.

#### TABANUS MACQUARTI Ricardo.

Ann. Mag. Nat. Hist., (8), xiv., p.277 (1915).

*Hab.*—N.S.W.: Kendall (R. J. Tillyard).—Q.: Mt. Tambourine (W. H. Davidson *per* R. J. Tillyard).

#### TABANUS SEQUENS Walker.

List. Dipt., i., p.178 (1848); Ricardo, Ann. Mag. Nat. Hist., (8), xv., p.278 (1915).

*Hab.*—N. Territory: Darwin (G. F. Hill, No. 106).

## TABANUS KURANDÆ, sp.n.

(Plate i., fig.5).

♀. Length, 17·5; width of head, 6·5; length of wing, 15 mm.

*Head*: face and cheeks black, with grey tomentum and black pubescence, lower third of face yellowish; beard grey, scanty; subcallus black, tomentum dull golden; front black, parallel, narrow, tomentum dull golden, pubescence black, frontal callus scarcely as wide as front, resting on subcallus, bottle-shaped, black, tumid, lineal extension thin, reaching the middle of front; palpi large, swollen, yellow, with dense black pubescence and a few pale hairs at the base, almost as long as proboscis, and ending in a blunt point; antennæ red, first joint long, about thrice the length of second, pubescence black, annuli dusky, tooth represented by a broad angle.

*Thorax* shining black, tomentum a dirty yellowish-brown, pubescence black, very short, sides red, with black pubescence, fairly long; scutellum red, base black, tomentum as on thorax, pubescence pale on posterior border; pleuræ with grey tomentum and pubescence.

*Abdomen*: segments one to four black, second to fourth with broad red segmentations, first with grey tomentum and a median tuft of yellowish hairs, segmentations pale, five to the apex red, pubescence black; venter with dark tomentum, pubescence black, segmentations pale.

*Legs*: femora and first tarsals dull red, tibiæ yellowish, apices reddish, pubescence black, dense on tarsi, tibiæ with pale hairs in addition.

*Wings* clear: veins brown; stigma pale yellow; no appendix present.

*Hab.*—Q.: Kuranda (F. P. Dodd).

Type unique. Very distinct and readily distinguishable on account of its abdominal ornamentations.

## TABANUS BATCHELORI, sp.n.

(Plate ii., fig.6).

♀. Length, 13·5; width of head, 5; length of wing, 11 mm.

*Head*: face and cheeks covered with grey tomentum and

pubescence, the latter fairly dense on the face, beard white; front parallel, tomentum grey-brown, pubescence black and golden, frontal callus brownish-black, small, about half the width of the front, pear-shaped, with a short lineal extension and resting on the subcallus, the latter with grey tomentum; eyes black; palpi creamy, with black and white pubescence, second joint swollen and tapering to a blunt point; first two joints and base of third of antennæ yellowish-brown, pubescence black and white on the first two joints, the remainder of third joint black, with a prominent angle and tooth.

*Thorax* black, shoulders reddish, pubescence black and copper-coloured; scutellum similar; pleuræ black, tomentum and pubescence grey, the latter long.

*Abdomen* yellowish-brown, becoming darker toward the apex, first two segments with small, black, median spots, pubescence black, dense, with indistinct, median, grey spots on all but the first segment; venter grey, with dense grey pubescence.

*Legs* black, basal half of fore-tibiæ yellowish, with pale pubescence, apex of femora and the tibiæ of mid- and hindlegs yellowish, with black and pale pubescence, tarsi dusky, pubescence black, coxæ and femora with grey tomentum and pubescence, the latter long on the coxæ.

*Wings* grey, brownish below the stigma, the base of the anterior branch of the third long vein, apex of the discoidal, the apex and basal portion of the inferior basal cells shaded brown; stigma dirty yellow; veins black; no appendix present.

*Hab.*—N. Territory: Batchelor, and near Darwin (G. F. Hill).

A species related to *T. sequens* Walker, but abundantly distinct from it.

Paratype in Coll. Hill.

#### TABANUS ATMOPHORUS, sp.n.

(Plate i., fig.7).

♀. Length, 10; width of head, 4; length of wing, 9 mm.

*Head*: face grey, with grey tomentum; cheeks ash-coloured, pubescence grey; subcallus black, tomentum ash-coloured; front black, tomentum ash-coloured, paler on the sides, pubescence



black, narrow, parallel, frontal callus square, reaching the eyes, black, with a stout lineal extension with a well marked groove, and reaching the apex of the middle third; palpi black, ending in a fine point, pubescence mostly grey; first joint of antennæ black, second and expanded portion of the third red, annuli black, pubescence on first and second joints black; beard grey.

*Thorax* black, red above the wing-roots, tomentum grey, pubescence black, lateral pubescence black, fairly long, scutellum similar to thorax; pleuræ with grey tomentum and pubescence.

*Abdomen* black, with black pubescence, first segment with grey tomentum, two to five grey on the sides, segmentations brown, with grey-white pubescence and tomentum, pubescence black on the last two segmentations, lateral pubescence grey-white; first two segments of venter grey, with grey pubescence, the remainder as on dorsum.

*Legs* black, knees orange-yellow, pubescence black.

*Wings* clear; veins dark brown; stigma yellowish-brown; no appendix present.

*Hab.*—Q.: Kuranda (F. P. Dodd).

Very close to *T. griseoannulatus* Taylor, but distinguished from it by the different frontal callus, colour of cheeks, and the knees. This species is also less robust in build.

TABANUS CRYPTERYTHRUS, sp.n.

Length, ♂, 10·5; ♀, 9·10·5: width of head, ♂, 4; ♀, 3·4 (vix): length of wing, ♂, 9; ♀, 8·5-9·5 mm.

♂. *Head*: face sunken, covered with whitish tomentum and pubescence; cheeks with grey tomentum and pubescence; subcallus grey, with a median groove, apical portion with grey-brown tomentum; palpi pale yellowish, first joint about half as stout as second, the latter nearly uniform in width, and tapering to a blunt point, pubescence grey, with a few scattered dark hairs on the apex; first two joints of antennæ slender, yellowish, with black pubescence, third reddish-yellow, tooth represented by a broad angle, with some black pubescence on the apex, annuli dusky-brown; eyes composed of fairly large, brown facets, the lower fourth and a narrow band encircling the eyes composed of very small, black facets; beard grey, scanty.



*Thorax* black, with dull golden tomentum and dark, erect pubescence, sides with mainly pale pubescence, scutellum similar; pleuræ black, with grey tomentum and pubescence, with some yellowish-hairs below the wing-roots.

*Abdomen*: first two segments yellowish-brown, third and fourth reddish-brown, the fourth darker than third, the rest blackish, their sides pale reddish-yellow, segmentations pale, pubescence black; first three segments of venter pale reddish-yellow, fourth dark red-brown, remainder blackish with pale segmentations, pubescence pale.

*Legs*: forelegs black, basal two-thirds of tibiæ dusky-red, mid- and hind-femora black, tibiæ yellow, apices tinged with reddish, first tarsals with basal half tinged reddish, the rest dusky, pubescence black, mixed with pale hairs on the coxæ and femora, tomentum on coxæ and femora grey.

*Wings* clear; veins brown, those on the basal half of wings and the subcostal yellow; stigma pale yellowish-brown; no appendix present.

♀. *Head*: face and cheeks as in ♂, but face *not* sunken; subcallus with grey tomentum; front parallel, narrow, with grey tomentum and black pubescence, frontal callus dark reddish-brown almost reaching the eyes, pear-shaped, with a moderately stout, blackish, lineal extension reaching the middle of the front; palpi pale yellowish, with mixed black and pale pubescence. There is a small, indefinite, black spot in the centre of the second segment of the abdomen, which is almost absent in ♂.

*Hab.*—N. Territory: Darwin, Stapleton, and 34-Mile Railway Station (G. F. Hill, No. 8).

Apparently, a well-defined species, most nearly related to *T. nigrimanus* Walker, but readily differentiated from it, *inter alia*, by the legs and antennæ.

#### TABANUS FUGITIVUS, sp.n.

♀. Length, 13; width of head, 5; length of wing, 12 mm.

*Head*: face and cheeks covered with grey tomentum, pubescence grey, lower portion of face yellowish; beard grey, front black, tomentum a dirty-grey, frontal callus black, pear-shaped,

no lineal extension, resting on the subcallus, and about one-third of the width of the front; subcallus black, tomentum grey; palpi yellowish, pubescence pale, apical third of second joint uniform in width, and ending in a blunt point; first two joints of antennæ reddish-brown, pubescence black, basal portion of third darker than first two, annuli black.

*Thorax* black, tomentum brown, greyish anteriorly, pubescence black, scutellum similar; pleuræ with grey tomentum and scattered grey pubescence.

*Abdomen*: second segment yellowish-brown, the remaining segments brown, the apical four black when abraded, pubescence black; all segments with indistinct, apical, median, grey spots, segmentations yellowish; venter black, with greyish tomentum and pale pubescence, segmentations pale.

*Legs* black, femora and coxæ with grey tomentum and pubescence, long on coxæ, knees pale, apical half of femora and basal two-thirds of tibiæ yellowish-brown, mid-tibiæ entirely so, tarsi dusky, with black pubescence.

*Wings* clear; veins dark brown, cross-veins at base of discoidal and adjacent cells faintly clouded brown; stigma yellow; appendix present.

*Hab.*—N. Territory: Darwin (G. F. Hill).

Type unique. Apparently more closely related to *T. sequens* Walker, than to others of Group ix.

#### TABANUS SILVIFORMIS, sp.n.

♀. Length, 8.5-11.5; width of head, 3.4; length of wing, 7.75-10 mm.

A small, reddish-brown species, very similar to *Silvius frontalis* Ricardo, in appearance. Thorax, abdomen, and legs reddish-brown. Antennæ reddish. Wings with brown veins, no appendix.

*Head*: face with cream-coloured tomentum, tomentum on cheeks grey, pubescence brownish; beard pale, very scanty; front with dark-brown tomentum, narrower at the vertex; frontal callus chestnut-brown, almost square, resting on subcallus, nearly as wide as front, with a short, stout, extension; subcallus grey,

paler in centre: first two joints of antennæ reddish, with grey tomentum and black pubescence, third yellowish-brown, apical annuli darker, base with a small, distinct tooth; palpi slender, basal half of second joint slightly swollen, yellowish, tomentum grey, pubescence black, very sparse.

*Thorax* reddish-brown, with two, narrow, grey stripes, pubescence pale, brown laterally; scutellum reddish-brown, pubescence pale; pleuræ reddish, with grey tomentum and pubescence.

*Abdomen* reddish-brown, pubescence brown, brown and black on apical segment, segmentations and pubescence pale, segments one to six with median, apical, pale, triangular spots, with pale pubescence; venter blackish-brown, tomentum, pubescence, and segmentations pale.

*Legs* reddish, coxæ with grey tomentum, tarsi blackish, pubescence on femora and tibiæ grey, black on tarsi.

*Wings* clear; veins brown; stigma brownish; no appendix.

*Hab.* — Q.: Stradbroke Island (H. Hacker).

A species strikingly similar to *Silvius frontalis* Ricardo, in general appearance. It is most nearly related to *T. townsvilli* Ricardo, but is easily separated from it by the thorax, abdomen, and legs.

Type in Queensland Museum; paratype in Institute Coll.

#### TABANUS TOWNSVILLI Ricardo.

Ann. Mag. Nat. Hist., (8), xv., p.281 (1915).

Four specimens appear to be of this species, and a fifth is included till further material is available. They all differ more or less from the description, but, on the whole, appear to belong to this species.

*Hab.* — Q.: Brisbane, Stradbroke Island (H. Hacker).

Group x. Species with the abdomen unicolorous, or almost so, sometimes darker at apex.

#### TABANUS SPATIOSUS Ricardo.

Ann. Mag. Nat. Hist., (8), xv., p.288 (1915).

*Hab.* — Q.: Stradbroke Island (H. Hacker).

Represented by a single specimen, which agrees well with the description, but the abdomen is very greasy.

## TABANUS SANGUINARIUS Bigot.

Mém. Soc. Zool. France, v., p.675 (1892) [*Atylotus*]: Ricardo, Ann. Mag. Nat. Hist, (8), xv., p.287 (1915).

*Hab.*—N.S.W.: Wauchope (R. J. Tillyard).

## TABANUS MINOR, sp.n.

(Plate i., fig.8).

♀. Length, 8.9; width of head, 3; length of wing, 8.8.5 mm.

*Head*: face grey, lower portion yellowish, tomentum and pubescence grey, cheeks grey; beard grey, scanty; front parallel, black, with brownish tomentum and black pubescence, frontal callus black, shining, pear-shaped, with a short, stout extension, about two-thirds the width of the front and resting on the subcallus; palpi creamy, with black and pale pubescence, fairly stout and ending in a blunt point; first two joints of antennæ yellow, with black pubescence; third joint reddish-yellow, with a small angle, some black pubescence on its apex, annuli black.

*Thorax* black, tomentum brown, pubescence pale; shoulders pale, with black and grey pubescence; pleuræ with grey tomentum and pubescence; scutellum similar to thorax.

*Abdomen*: first two segments yellowish-brown, the remainder brown with pale segmentations, tomentum brown, pubescence pale; venter similar to dorsum.

*Wings*: veins brown, faintly clouded with yellowish-brown; stigma yellowish-brown; a long appendix present.

*Legs* yellow, apex of fore-tibiæ brown, fore-tarsi black, mid and hind brown.

*Hab.*—N. Territory: Darwin (G. F. Hill, Nos.109, 112).

A small, obscure species closely related to *T. nigrimanus* Walker, but differing, *inter alia*, in the antennæ and wings.

Paratype in Coll. Hill.

## TABANUS HILLI, sp.n.

(Plate ii., fig.9).

♀. Length, 11.5-13; width of head, 4.5; length of wing, 11-12 mm.

*Head*: face and cheeks ashen, lower portion of face yellowish, pubescence pale, scanty; beard grey; subcallus reddish-brown, with ash-coloured tomentum; front parallel, black, tomentum

yellowish, frontal callus dark brown, pear-shaped, with a short lineal extension, about one-third the width of the front; palpi yellowish, second joint moderately slender, ending in a blunt point, pubescence pale, with a few, scattered, black hairs; first two joints of antennæ yellow, pubescence black, base of third reddish-brown, annuli black, tooth represented by an obtuse angle.

*Thorax* black, with brown tomentum, sides faintly reddish, scutellum similar to thorax, pubescence black, pale laterally; pleuræ with grey tomentum and pubescence.

*Abdomen* brown, first segment darker, with a brown posterior border, segmentations greyish, pubescence black; venter dark brown, with grey tomentum and pubescence.

*Legs* yellowish-brown, tarsi darker, pubescence mostly black.

*Wings* clear; veins dark brown; stigma yellow; a short appendix present.

*Hab.*—N. Territory : Darwin (G. F. Hill, No.67).

This species appears to be related to *T. spatiosus* Ricardo, and to *T. nigratarsis* Taylor, but is readily distinguished from them.

I have much pleasure in dedicating this species to its discoverer.

*Paratype* in Coll. Hill.

#### TABANUS DAVIDSONI, sp.n.

♀. Length, 15.5; width of head, 5; length of wing, 13 mm.

*Head*: face yellowish, black on the upper third, with grey tomentum, pubescence pale; cheeks with dark brown tomentum and black pubescence; subcallus dark brown, with a shallow median groove; front slightly narrower anteriorly, tomentum dark brown, pubescence black, frontal callus about half the width of the front and resting on the subcallus, pear-shaped, with a lineal extension reaching the middle of front, black, lower half of basal portion reddish-brown; beard grey; palpi pale reddish, stout, ending in a fine point, pubescence black, dense; antennæ dusky-red, annuli black, pubescence black on first two joints, a well defined tooth on expanded portion of the third joint.

*Thorax* dark reddish-brown, tomentum brown, greyish on anterior and posterior margins, two lateral black stripes are

visible when denuded, scarcely discernible under the tomentum, sides reddish, pubescence black; scutellum reddish-brown, tomentum brown; pleuræ with grey tomentum and pubescence.

*Abdomen* reddish-brown, pubescence black, pale on the segmentations and laterally; venter reddish-brown, blackish in the centre and toward the apex, pubescence and tomentum pale.

*Legs*: forelegs black, basal two-thirds of tibiæ yellowish, with pale pubescence, mid- and hind-femora reddish-brown, pubescence pale, tibiæ yellowish-brown, hind paler, pubescence mainly black, tarsi black, pubescence black.

*Wings* clear; veins dark brown; stigma pale yellow; no appendix.

*Hab.* — Q.: Mt. Tambourine (W. H. Davidson per R. J. Tillyard).

This is a very distinct species, and is most nearly related to *T. kershawi* Ricardo, but may be distinguished from it, *inter alia*, by the face, cheeks, palpi, and antennæ.

#### TABANUS PALPALIS, sp.n.

♀. Length, 9; width of head, 3; length of wing, 9.25 mm.

*Head*: face and cheeks yellowish, pubescence pale; beard pale; front yellowish, pubescence black, slightly narrower posteriorly, about three and a half times as long as wide anteriorly, frontal callus small, reddish-brown, almost quadrate, about half the width of the front, lineal extension very short and thin; first two joints of antennæ reddish-yellow, pubescence black, third joint bright reddish, basal portion broad, no angle or tooth present, apical annuli black; palpi yellowish, second joint long, thin (resembling the palpi of *Silvius*), and ending in a blunt point, pubescence mainly pale.

*Thorax* dark olive-buff, shoulders reddish, pubescence pale on the sides, scutellum darker than thorax; pleuræ greyish.

*Abdomen* reddish-yellow, apex darker, pubescence apparently pale, mostly denuded, venter similar to dorsum, pubescence pale.

*Legs* reddish-yellow, fore-femora and tibiæ darker, tarsi dusky, pubescence pale, black on tarsi.

*Wings* clear; veins brown; stigma lemon-yellow; a long appendix present.

*Hab.*—N. Territory: Batchelor (G. F. Hill, No.2).

A species readily distinguished by its palpi and general colour. Apparently not closely related to other species of Group x.

Group xi. Species with pubescence on the eyes (*Therioplectes*).

TABANUS CIRCUMDATUS Walker.

List. Dipt., i., p.185 (1848); Ricardo, Ann. Mag. Nat. Hist., (8), xvi., p.280 (1915); White, Papers and Proc. Roy. Soc. Tasmania, 1915, p.14; Taylor, Records Aust. Museum, xii., No.5, p.67 (1918).

*Hab.*—N.S.W.: Palm Beach (R. J. Tillyard), Cordeaux Dam (*per* W. W. Froggatt).—Victoria: Gisborne (G. Lyell *per* R. J. Tillyard).—Tasmania: George Town, St. Helen's, Mt. Arthur (F. M. Littler).

TABANUS REGIS GEORGII Macquart.

Dipt. Exot., i., p.132 (1838); Ricardo, Ann. Mag. Nat. Hist., (8), xvi., p.276 (1915).

I refer two specimens before me, provisionally, to this species. They agree with Miss Ricardo's note on the species, and also bear some affinity to the description of *T. postponens* Walker, which, Miss Ricardo states, it closely resembles.

*Hab.*—Q.: Townsville (Dr. A. Breinl).

TABANUS BRISBANENSIS Taylor.

(Plate ii., figs.10, 11).

Proc. Linn. Soc. N. S. Wales, 1917, xlii., p.526.

Three specimens before me bear a striking similarity to this species, differing only in having the annuli of the third joint of antennæ black, the basal portion broad, with a shallow angle; the frontal callus is slightly larger, with a short, stout, extension; the beard is also distinctly yellowish. These distinctions are not sufficient to separate them specifically.

*Hab.*—Tasmania: St. Helen's, George Town, and St. Mary's (F. M. Littler, No.2741).

In describing the type, I inadvertently described the frontal callus inaccurately, owing to the surrounding frontal area being glossy. It should read as follows:—Frontal callus a reddish-

brown, shining, irregularly oval plug without a lineal extension, its base about half the width of the front and resting on the subcallus. The annuli of the third joint of the antennæ are also slightly dusky.

TABANUS KENDALLENSIS, sp.n.

♀. Length, 9.5-10; width of head, 4; length of wing, 9 mm.

*Head*: face and cheeks with grey tomentum and pubescence; beard grey; front about one-third wider anteriorly, tomentum golden-yellow, brownish on the vertex, pubescence black, frontal callus shining, dark reddish-brown, almost square, about two-thirds the width of front and resting on subcallus, with a stout, black, lineal extension reaching the middle of the front; subcallus yellowish, with grey tomentum; palpi yellowish, tomentum grey, pubescence mainly black; first two joints of antennæ pale reddish-yellow, pubescence black [third joint wanting]; eyes greenish, when moistened, and very faintly pubescent.

*Thorax* black, with brown tomentum and erect black pubescence with numerous golden hairs, sides reddish, with long pubescence, mainly dark, scutellum similar; pleuræ grey with long grey pubescence.

*Abdomen*: first three segments ochraceous-orange, with a broad, median, black stripe, second to fifth segments with median, triangular, golden-haired flecks, base of first dusky, segments four to the apex black, with lateral margins ochraceous-orange, tomentum yellowish, pubescence black, pale on the posterior and lateral margins, segmentations ochraceous-orange; venter with the first three segments reddish-yellow, rest black, tomentum greyish, pubescence pale.

*Legs* black, basal half of fore-tibiæ yellowish-brown, mid- and hind-tibiæ paler; coxæ and femora with grey tomentum, pubescence black, a few pale hairs on the femora and tibiæ.

*Wings* clear; veins dark brown, yellowish at the base; stigma yellow; an appendix present.

*Hab.*—N.S.W.: Kendall (R. J. Tillyard; 25.2.17).

A species close to *T. neobasalis* Taylor, but differing markedly in the clothing of the front, and in the legs.



## TABANUS ROBUSTUS, sp. n.

♀. Length, 17; length of wing, 14; width of head, 6 mm.

*Head*: face and cheeks covered with white tomentum and pubescence, the latter fairly long on the face; beard white, dense; first two joints of antennæ deep red, with black pubescence, and scattered, white and grey hairs on inner sides: third joint missing; palpi reddish-yellow, tapering to a blunt point, pubescence white; subcallus covered with grey tomentum; front broad, narrower at vertex, tomentum greyish-white, vertex with brown tomentum; frontal callus black, shining, as wide as front, resting on subcallus, and gradually tapering to a blunt point, ending about the middle of the front; eyes black, pubescence short and pale.

*Thorax* pale reddish, with grey tomentum, a broad, median, dark brown stripe terminating on a level with the wing-roots, from whence it is continued to the scutellum as a very narrow line, on either side is a brown stripe the full length of the thorax, and a short one above the wing-roots; shoulders yellowish, lateral pubescence grey, dorsally dark on the stripes, grey elsewhere; scutellum dark, posterior border grey; pleuræ grey, with patches of long, grey pubescence.

*Abdomen*: first segment dark, with grey tomentum, posterior border yellowish except centrally, remaining segments somewhat greasy, appearing brown, segmentations paler, with remains of grey tomentum; venter black, segmentations pale, tomentum grey, pubescence grey, scattered.

*Legs*: coxæ and femora grey, with long, grey pubescence, the latter shorter on the femora, fore-tibiæ pale red-brown, mid dark red-brown, hind black, pubescence pale, tarsi black, pubescence black, hind-tibiæ with a dense white fringe of hairs on the external margin.

*Wings* clear; veins dark brown; stigma yellowish-brown; appendix present.

*Hab.*—Q.: Brisbane (H. Hacker; 29.10.17).

A very distinct and robust species, not closely related to any species known to me. The white fringe on the hind-tibiæ is very noticeable.

Type in the Queensland Museum.

## TABANUS GERALDTONENSIS, sp.n.

(Plate i., fig. 12).

♀. Length, 12; length of wing, 11; width of head, 4.5 mm.

*Head*: face and cheeks grey, with grey pubescence; subcallus pale dirty yellow; front parallel, grey, yellowish toward the base and along the sides, pubescence black, frontal callus about one-half the width of the front at base, deep red, flask-shaped, with a stout, lineal extension reaching the middle of the front, a few black hairs on the vertex; eyes black, pubescence very short and scanty; first two joints and basal half of base of third joint dull reddish, rest of basal portion of third joint dusky, annuli black, pubescence on first two joints mainly black; palpi slender, about two-thirds the length of proboscis, yellowish, ending in a fine point, pubescence yellowish, beard grey.

*Thorax* black, shoulders obscurely reddish, tomentum grey, pubescence black and golden, grey on sides, scutellum similar to thorax; pleuræ obscurely black and reddish, tomentum and pubescence grey.

*Abdomen* reddish-brown, darker on last three segments, segments one to four black in the centre, all segments with median, grey, triangular spots, with their bases resting on the posterior border, segmentations and sides of segments yellowish, pubescence black, pale on the pale areas; venter reddish, black in the centre, pubescence pale.

*Legs*: fore-coxæ pale, with long, grey pubescence, mid and hind dusky, tomentum and pubescence grey, the latter shorter than on fore-coxæ, femoro-coxal joint of foreleg slate-coloured, fore-femora and basal half of tibiæ yellowish, the rest dusky, mid-femora and tibiæ yellowish, tarsi dusky, basal half of hind-femora dusky, the rest yellowish, tibiæ and tarsi wanting, tarsi of fore- and midlegs black, pubescence pale and dark on femora, black on tibiæ and tarsi.

*Wings* clear; veins brown; stigma yellow; a small appendix present.

*Hab.*—W.A.: Geraldton (J. Clarke, Coll. W. W. Froggatt, No. 75 F).

Closely related to *T. antecessens* Walker, but differing in having

a smaller frontal callus, in the absence of stripes on the thorax, and in the scanty pubescence on the eyes. The abdomen and legs also differ.

TABANUS POSTPONENS Walker.

List. Dipt., i., p.179 (1848); Ricardo, Ann. Mag. Nat. Hist., (8), xvi., p.282 (1915); Taylor, Records Aust. Mus., xii., No.5, p.69 (1918).

*Hab.*—Q.: Stradbroke Island (H. Hacker).

Two specimens, ♂♀, the latter agreeing well with Miss Ricardo's description. The male has already been described by me from a specimen in the Australian Museum Collection.

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EXPLANATION OF PLATES I.-II.

Plate i.

- Fig.1.—*Tabanus walteri*, sp.n.  
 Fig.3.—*T. obscurilincatus*, sp.n.  
 Fig.5.—*T. kuranda*, sp.n.  
 Fig.7.—*T. atmophorus*, sp.n.  
 Fig.8.—*T. minor*, sp.n.  
 Fig.12.—*T. geraldtonensis*, sp.n.

Plate ii.

- Fig.2.—*Tabanus eidsvoldensis*, sp.n.  
 Fig.4.—*T. obscurimaculatus*, sp.n.  
 Fig.6.—*T. batchelor*, sp.n.  
 Fig.9.—*T. hilli*, sp.n.  
 Fig.10.—*T. brisbanensis* Taylor, from Queensland.  
 Fig.11.—*T. brisbanensis* Taylor, from St. Helen's, Tasmania.